

1997

AUG 13 1997

US EPA RECORDS CENTER REGION 5



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DRP-8J

Mr. Jerry Kuhn  
Manager - RCRA Unit  
Permit Section - Division of Land Pollution Control  
Illinois Environmental Protection Agency  
P.O. Box 19276  
Springfield, Illinois 62794-9276

Re: Northwestern Steel and Wire Company  
RCRA Permit Renewal  
ILD 005 263 157

Dear Jerry:

In response to our commitment made to you during your visit to the Region on July 23, 1997, I am enclosing the following items relevant to corrective action issues associated with the permit renewal for Northwestern Steel and Wire Company, Sterling, Illinois:

1. Proposed wording of the permit conditions to continue corrective action at the Pre-RCRA Landfill.
2. Brief description of the activities related to corrective action at the site. This wording could be used for the fact sheet to be issued when the draft permit renewal is public noticed.
3. Copies of a site diagram of the SWMU, together with the latest cumulative summary of the groundwater monitoring results from 1989 to the present.

If you need more detailed information, please let me know. After you review the material, I would be glad to incorporate any changes you wish to make, or I could send you a disk with the first two items (in Word Perfect 6.1) for your staff to make changes. I will not do anything further until I receive your response. My phone number is (312) 886-0989.

Sincerely,

Gale R. Hruska  
Corrective Action Project Manager

GRH  
8-12-97

JS  
8/12/97

nw8



**NOTE: ALL ITEMS IN ITALICS NEED TO BE MODIFIED TO REFLECT CONFORMANCE WITH STATE OF ILLINOIS AUTHORITIES**

**III. CORRECTIVE MEASURES IMPLEMENTATION**

**A. REQUIREMENT TO IMPLEMENT CORRECTIVE MEASURES**

1. Based on the *Regional Administrator's* review of the final reports for the RCRA Facility Investigation and Corrective Measures Study submitted by the Permittee, it is determined that there are continuing releases of hazardous constituents from the solid waste management unit (SWMU) identified as the pre-RCRA Landfill.
2. As required by *40 CFR 264.101(a)*, the Permittee is hereby required to implement corrective action as necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from the pre-RCRA Landfill.

**B. IDENTIFICATION OF CONTAMINATED MEDIA AND HAZARDOUS CONSTITUENTS**

For the purposes of this Corrective Measures Implementation (CMI), the medium of concern is the upper aquifer groundwater associated with the pre-RCRA Landfill. The hazardous constituents constituting the release are: (1) vinyl chloride, (2) cis-1,2 dichloroethylene (DCE), and (3) trichloroethylene (TCE).

**C. CORRECTIVE MEASURES IMPLEMENTATION REMEDY**

The remedy to be implemented is identified as the Limited Action Alternative, as described in the Permittee's Pre-RCRA Landfill Corrective Measures Study, submitted August 12, 1991 to the United States Environmental Protection Agency (U.S. EPA), and as modified by the terms of this permit. The remedy is to be implemented in accordance with the Pre-RCRA Landfill Corrective Measures Implementation Work Plan, as initially approved by the U.S. EPA on July 8, 1993, together with all subsequently approved modifications to the work plan. The choice of this remedy is based on the findings that: the releases of hazardous constituents into the groundwater from the pre-RCRA Landfill are below concentrations posing significant threats to human health and the environment at the point of their release into the Rock River; there is no current or potential future use of groundwater between the pre-RCRA Landfill and the Rock River; and, the natural attenuation of the hazardous constituents will achieve groundwater cleanup within a reasonable time. The major technical features of this remedy are:



1. Establishment of a periodic groundwater monitoring program, with provisions to trigger a re-evaluation of the remedy if contaminant concentrations were to increase toward levels that would pose a threat to human health and the environment.
2. Establishment of controls to prevent intrusion into and disturbance of the soils above the pre-RCRA Landfill and the plume of contamination.
3. Establishment of controls to prevent the use of groundwater which has been affected by the contamination.

D. IDENTIFICATION OF POINT OF COMPLIANCE

1. A point of compliance is established for the purposes of monitoring the groundwater at the pre-RCRA Landfill in order to determine: (1) whether concentrations of hazardous constituents are increasing such that additional corrective measures are needed, and (2) when cleanup levels have been met, so as to allow termination of corrective measures.
2. For the purposes of groundwater monitoring, the compliance point shall be the vertical plane along the boundary of the pre-RCRA Landfill, defined by Wells MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-11, MW-12 and MW-15.

E. GROUNDWATER CLEANUP STANDARDS

1. Cleanup standards for the hazardous constituents defining the release to the groundwater are the maximum contaminant levels (MCLs) for the following constituents identified in Title 40 Code of Federal Regulations (40 CFR) 141.61 (National Revised Primary Drinking Water Regulations: maximum contaminant levels for organic contaminants):

Vinyl Chloride	2	micrograms/liter
cis-1,2 Dichloroethylene	70	
Trichloroethylene	5	

2. The cleanup standards apply to groundwater at the point of compliance. The groundwater shall be deemed to have met the cleanup standards when there have been four (4) consecutive rounds of groundwater sampling at the compliance points identified in Condition III.D.2. of this permit, with no sampling results exceeding 10 micrograms/liter for both vinyl Chloride and Trichloroethylene, and 70 micrograms/liter for cis-1,2 Dichloroethylene.



F. DEMONSTRATION OF FINANCIAL ASSURANCE

1. *Within 120 days of the effective date of this permit modification, the Permittee shall demonstrate financial assurance for completing the corrective measures and submit this information to the Regional Administrator. The demonstration shall conform to the requirements promulgated in 40 CFR Part 264 - Subpart H, for the closure and post-closure of RCRA-regulated hazardous waste management units.*
2. *The Permittee may incorporate this demonstration into its demonstration of financial assurance required for the closure and post-closure of the facility's RCRA-regulated hazardous waste management units.*
3. *The Permittee shall adjust its cost estimate for completion of the corrective measures annually to account for the effects of inflation and changes in operating and maintenance costs. If the Permittee incorporates this demonstration of financial assurance into that required for closure and post-closure of regulated units, then the Permittee may choose to submit the combined demonstration of financial assurance at the same time that it is required to submit the information on the regulated units. If the Permittee does not choose this option, it must submit the adjusted cost estimate within 30 days of the close of the facility's fiscal year.*
4. *The Permittee must revise and submit a revised cost estimate for completion of the corrective measures no later than 30 days after any modification to the CMI work plan is approved which will materially increase the cost of implementing the CMI.*
5. *The requirement to demonstrate financial assurance for completion of the CMI shall terminate upon notice from the Regional Administrator that corrective action has been successfully completed.*

G.. CORRECTIVE MEASURES IMPLEMENTATION - GROUNDWATER MONITORING

1. The Permittee shall monitor the groundwater in the wells identified below for the hazardous constituents identified in Condition III.B. twice each calendar year, according to the alternating sequence below. The first monitoring event (Sequence A or B, if the last monitoring event was B or A, respectively) required under the provisions of this permit shall take place 6 months after the date of the last scheduled monitoring event implemented under the provisions of the March 22, 1993 modification of the Federal portion of the original permit. The sequence is:



- a. Sequence A Wells: MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-11, MW-12, MW-15, MW-16, MW-17, and MW-18.
  - b. Sequence B Wells: MW-3, MW-4, MW-5, MW-6, and MW-15.
2. If a triggering of contingent corrective measures occurs, as identified in Condition III.H., the *Regional Administrator* may require more extensive and/or frequent groundwater monitoring to confirm the presence of a triggering increase in the release of hazardous constituents before making a decision to implement the provisions of Condition III.I.
3. All solid and hazardous wastes generated as a result of these, or other activities related to the remedy shall be managed in conformance with all applicable State and Federal requirements.

#### H. TRIGGERING OF CONTINGENT CORRECTIVE MEASURES

1. This permit condition is established to determine when the results from a sampling event identified in Condition III.G. of this permit constitute an increase in the release of hazardous constituents from the pre-RCRA Landfill requiring the implementation of contingent corrective measures required in Condition III.I. of this permit.
2. For each sampling event, in addition to obtaining the concentration levels of the individual hazardous constituents in the wells required to be sampled, the Permittee shall calculate the mean value of the concentration of each individual constituent over the down gradient face of the pre-RCRA Landfill (i.e., the mean value of the concentrations found in wells MW-3, MW-4, MW-5, MW-6, and MW-15).
3. If analysis of the results of a sampling event indicate that both of the following conditions have occurred, then a triggering of contingent corrective measures is deemed to have occurred:
  - a. The concentration of a hazardous constituent in an individual well exceeds the following respective concentrations (in micrograms per liter):

<u>WELL</u>	<u>CONSTITUENT</u>	<u>CONCENTRATION</u>
MW-15	vinyl chloride	20
	cis-1,2 DCE	230
	TCE	10



MW-3	vinyl chloride	290
	cis-1,2 DCE	230
	TCE	10
MW-4	vinyl chloride	30
	cis-1,2 DCE	1260
	TCE	10
MW-5	vinyl chloride	180
	cis-1,2 DCE	190
	TCE	10
MW-6	vinyl chloride	20
	cis-1,2 DCE	10
	TCE	10

- b. The mean value of each individual hazardous constituent taken over the values in wells MW-15, MW-3, MW-4, MW-5, and MW-6 exceeds the following values (in micrograms per liter):

<u>CONSTITUENT</u>	<u>VALUE</u>
vinyl chloride	150
cis-1,2 DCE	280
TCE	10

4. If a triggering of contingent corrective measures has occurred, the Permittee must notify the *Regional Administrator* within 15 days of receipt of the sampling results. Upon request of the Permittee, the *Regional Administrator* may approve a resampling of the groundwater before implementing the provisions of Condition III.I.

#### I. IMPLEMENTATION OF CONTINGENT CORRECTIVE MEASURES

If a triggering of contingent corrective measures has occurred, or if the *Regional Administrator* determines that, based on information submitted by the Permittee or otherwise obtained, compliance with a remedy requirement(s) is not technically practicable, or that the *Regional Administrator* determines that additional remedial measures are required to ensure prompt completion, safety, effectiveness, protectiveness, or reliability of the remedy, then the *Regional Administrator* may modify the



permit/permit schedule to incorporate additional requirements necessary to protect human health and the environment.

J. ACTIVITIES INVOLVING THE SOILS AND FILL IN THE PRE-RCRA LANDFILL

1. The Permittee shall not perform (or allow to be performed) within the boundary of the pre-RCRA Landfill, any activities which would disturb the soil and fill at a depth greater than 12 inches below the surface of the landfill, until sufficient sampling has been done to determine whether the soils and fill material to be affected by the activities either contain any of the hazardous constituents identified in Condition III.B. of the permit, or exhibit any hazardous characteristics identified in *40 CFR Part 261 - Subpart C*; and whether these activities would have the potential of causing additional releases of hazardous constituents so as to affect human health or the environment.
2. The Permittee shall, at a minimum, post signs along the perimeter of the pre-RCRA Landfill warning that any activities which could disturb the soil in the landfill are prohibited without prior approval. If at any time, access to the facility by nonauthorized persons cannot be assured, then the Permittee must also construct and maintain a fence around the pre-RCRA Landfill of adequate design to prevent access by nonauthorized persons.
3. The Permittee shall manage all solid and hazardous wastes generated as a result of activities involving the soils and fill in the pre-RCRA Landfill in conformance with all applicable State and Federal requirements.
4. No later than 60 days prior to the anticipated starting date of any activities involving the soils and fill at the pre-RCRA Landfill, the Permittee must submit to the *Regional Administrator* a report detailing (at a minimum): the proposed activity, the details of the sampling effort, the results of the sampling analysis, an assessment of the impact of the proposed activity on the potential for releasing hazardous constituents to the environment in such amounts as to impact human health and the environment, and the facility's plan to manage any solid and hazardous wastes generated in conformance with all applicable State and Federal requirements. The *Regional Administrator* shall review the report, and may as a result of the review, either approve the proposed activity, or require additions and/or modification of the sampling activity to incorporate measures necessary to ensure protection of human health and the environment.

K. RESTRICTIONS ON THE USE OF GROUNDWATER



Except for purposes of sampling, the Permittee shall not use, nor allow the use of groundwater in the aquifer immediately in contact with the soils and fill constituting the pre-RCRA Landfill and the identified plume of contamination down gradient from the landfill, without the expressed written approval of the *Regional Administrator*. The *Regional Administrator* may either disapprove such use, or impose such conditions as are necessary to protect human health and the environment.

L. REPORTING REQUIREMENTS

1. The Permittee shall continue to submit semiannual progress reports, beginning 6 months after the last scheduled reporting date implemented under the provisions of the March 22, 1993 modification to the Federal portion of the original permit. The reports shall include at a minimum:
  - a. Summaries of the progress of remedy implementation, including results of monitoring and sampling activities, progress in meeting media cleanup standards, and description of other remedial activities occurring during the monitoring period;
  - b. Problems encountered during the reporting period, and actions taken or proposed to resolve the problems;
  - c. Changes in personnel conducting or managing the remedial effort;
  - d. Project work for the next reporting period;
  - e. Copies of laboratory reports and field sampling reports;
  - f. A summary of all triggering of contingent corrective measures during the reporting period, as provided for in Condition III.H., as well as all actions taken in response to the triggering event; and
  - g. Summaries of all contacts with representatives of the local community, public interest groups, and local and State government representatives on matters which are related, or could affect the CMI.
2. The Permittee shall maintain at the facility all raw data generated with respect to corrective measures implementation (such as laboratory reports, drilling logs, and other supporting information) for a period of three (3) years after the termination of corrective action implementation. This period may be extended by the *Regional Administrator* at any time and is automatically extended during the course of any



enforcement action involving corrective action issues until 3 years after the enforcement action has been terminated.

M. COMPLETION OF REMEDY

1. When the Permittee determines that the groundwater cleanup standards specified in Condition III.E. have been met, the Permittee shall request that the *Regional Administrator* terminate the corrective measure. At the same time, the Permittee shall submit a final CMI report which shall contain, at a minimum:
  - a. A summary of the remediation activities;
  - b. A summary of the groundwater sampling results obtained over the course of the remediation;
  - c. A demonstration that the groundwater cleanup standards have been met; and
  - d. Any revisions to the Decommission and Decontamination Plan approved as part of the CMI work plan.
2. The *Regional Administrator* shall approve, approve with modifications, or disapprove and provide comments to the Permittee as to the corrections or modification needed for the final CMI report.
3. Within 30 days of the approval of the final CMI report, the Permittee shall begin implementing the approved Decommission and Decontamination Plan.
4. Within 60 days of completion of the decommission and decontamination activities, the Permittee shall provide a certification that the remedy has been completed in accordance with the terms of this permit. The certification must be signed by both the Permittee and an independent professional(s) skilled in the appropriate technical discipline(s).
5. Upon receipt of the certification, the *Regional Administrator* shall modify the permit to terminate the requirement for CMI, according to the procedures specified for permit modifications in 40 CFR 270.41.

N. CONTINUATION OF PERMIT

1. The provisions of Condition III. shall continue in effect until either the permit is reissued, or the termination provisions of Section III.M. are completed, even if the



closure and post-closure requirements required of the operating RCRA-regulated units have been completed, and the operating hazardous waste management portion of the RCRA permit terminated.

2. This permit may be transferred by the Permittee to a new owner or operator only after providing notice to the *Regional Administrator*, and only if the permit is modified, or revoked and reissued, pursuant to 40 CFR 270.40(b), 270.41(b)(2), or 270.42(a). Before transferring ownership, the Permittee shall notify the new owner or operator in writing of the requirements of this permit, and shall provide it with a copy of this permit.

P. SCHEDULE OF COMPLIANCE

<u>Requirement</u>	<u>Due Date</u>
Update of financial assurance	<i>When required by State portion of permit, or within 30 days of close of facility's fiscal year</i>
Notification of triggering of contingent corrective measures	Within 15 days of discovery
Notification of proposed activity involving soils and fill in pre-RCRA Landfill	60 days prior to anticipated starting date
CMI progress reports	Beginning 6 months after the last scheduled reporting date implemented under the provisions of the March 22, 1993 modification to the Federal portion of the original permit, and every 6 months thereafter
Request for termination of CMI and submission of final CMI report	Permittee's determination
Submission of corrected/revised CMI final report	Determined by <i>Regional Administrator</i>
Implementation of Decommission and Decontamination Plan	30 days after approval of final CMI report



Certification of decommission and  
decontamination

Within 60 days of completion of  
decommission and decontamination



PROPOSED WORDING FOR FACT SHEET ASSOCIATED WITH PERMIT RENEWAL  
FOR NORTHWESTERN STEEL AND WIRE COMPANY, STERLING, ILLINOIS  
ILD 005 263 157

**Background**

In the Federal portion of the original Resource Conservation and Recovery Act (RCRA) permit issued to Northwestern Steel and Wire Company on September 30, 1987, the United States Environmental Protection Agency (U.S. EPA), under the provisions of the Hazardous and Solid Waste Amendments of 1984, required the Company to address corrective action for releases of hazardous constituents from a solid waste management unit (SWMU) identified as the Pre-RCRA Landfill. The SWMU covered an area of approximately 13.5 acres, and was approximately 8-10 feet deep. The wastes known to have been placed in the unit were: electric furnace slag, emission control dust/sludge, limestone neutralized pickle liquor sludge, mill scale, and construction debris. No actual releases of hazardous constituents had been documented up to that time, but it was recognized that further investigation was necessary.

As a result of the RCRA facility investigation performed under the terms of the permit, it was discovered that, while there were no significant releases of metals from the SWMU, there were releases of trichloroethylene (TCE), cis-1,2 dichloroethylene (DCE), and vinyl chloride into the groundwater, which flows from the landfill in a plume directed to the Rock River, approximately 200 feet away. Concentrations of TCE up to 5.5 micrograms/liter, DCE up to 900 micrograms/liter, and vinyl chloride up to 520 micrograms/liter were measured in the groundwater at the face of the landfill. However, these constituents were detected at only very low concentrations (18 micrograms/liter of vinyl chloride in one sample, and 4 micrograms/liter of DCE in each of 2 samples) in the sediments at the plume exit point to the river. No constituents were detected in the river water itself. (It should be noted that DCE and vinyl chloride are compounds that are created as a result of the natural breakdown of TCE.)

A corrective measures study (CMS) was performed by the facility to address the risks posed by the release, and evaluate various alternatives which could be used to remediate the release. The Company's risk assessment (which was verified and accepted by the U.S. EPA) determined that, if the soil in the landfill and that above the groundwater plume were not disturbed, the worst-case situation risk (to a fisherman wading unprotected in the river



for eight hours every day for forty years) would only be 4 in 10,000,000. The CMS also contained a number of alternatives for addressing the release, including soil and groundwater removal, as well as a no further action scenario.

On March 22, 1993, the Federal portion of the RCRA permit for the facility was modified to incorporate specific provisions which would allow for the natural remediation of releases of hazardous constituents at the Pre-RCRA Landfill. The modification required Northwestern Steel and Wire Company to periodically monitor the groundwater exiting the landfill, and to establish controls to prevent the disturbance of both the soils and fill constituting the landfill, as well as the soils above the groundwater plume. The permit modification did not require any active treatment or removal of the groundwater in the plume; however, it did require periodic groundwater monitoring. If the groundwater monitoring were to detect significant increases in the concentrations of hazardous constituents in the groundwater exiting the SWMU, then the U.S. EPA would be able to require more aggressive remedies.

The basis for the U.S. EPA's choice of actions were, that assuming none of the soils located above the landfill or the groundwater plume were disturbed, there was only a minimal risk of exposure that could threaten either human health or the environment. In addition, the analysis of the constituents in the groundwater showed that the concentrations of TCE were very much less than those of DCE and vinyl chloride. This was indicative that the natural breakdown of the TCE to its daughter products (DCE and Vinyl chloride) had been occurring, and that very little of the original source of contamination (the TCE) remains. In other words, natural processes were acting to remediate the releases. An additional factor for choosing a passive remediation scheme over other more aggressive schemes (such as groundwater removal and treatment) was that the aggressive schemes would be significantly more expensive, but would not significantly reduce environmental risk.

Continued groundwater monitoring since the issuance of the permit modification has supported the above rationale. Concentrations of the hazardous constituents at all of the wells being monitored have shown to be decreasing on average; in none of the wells has there been any trends of increases in contaminant concentrations.

(For additional information on past activities and/or sampling results, please contact: United States Environmental Protection Agency, Attn: Gale R. Hruska, Waste Management Branch - DRP-8J, Chicago, Illinois 60604-3590, (312) 886-0989.)



## Summary and Evaluation of Proposed Remedy

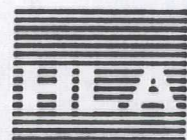
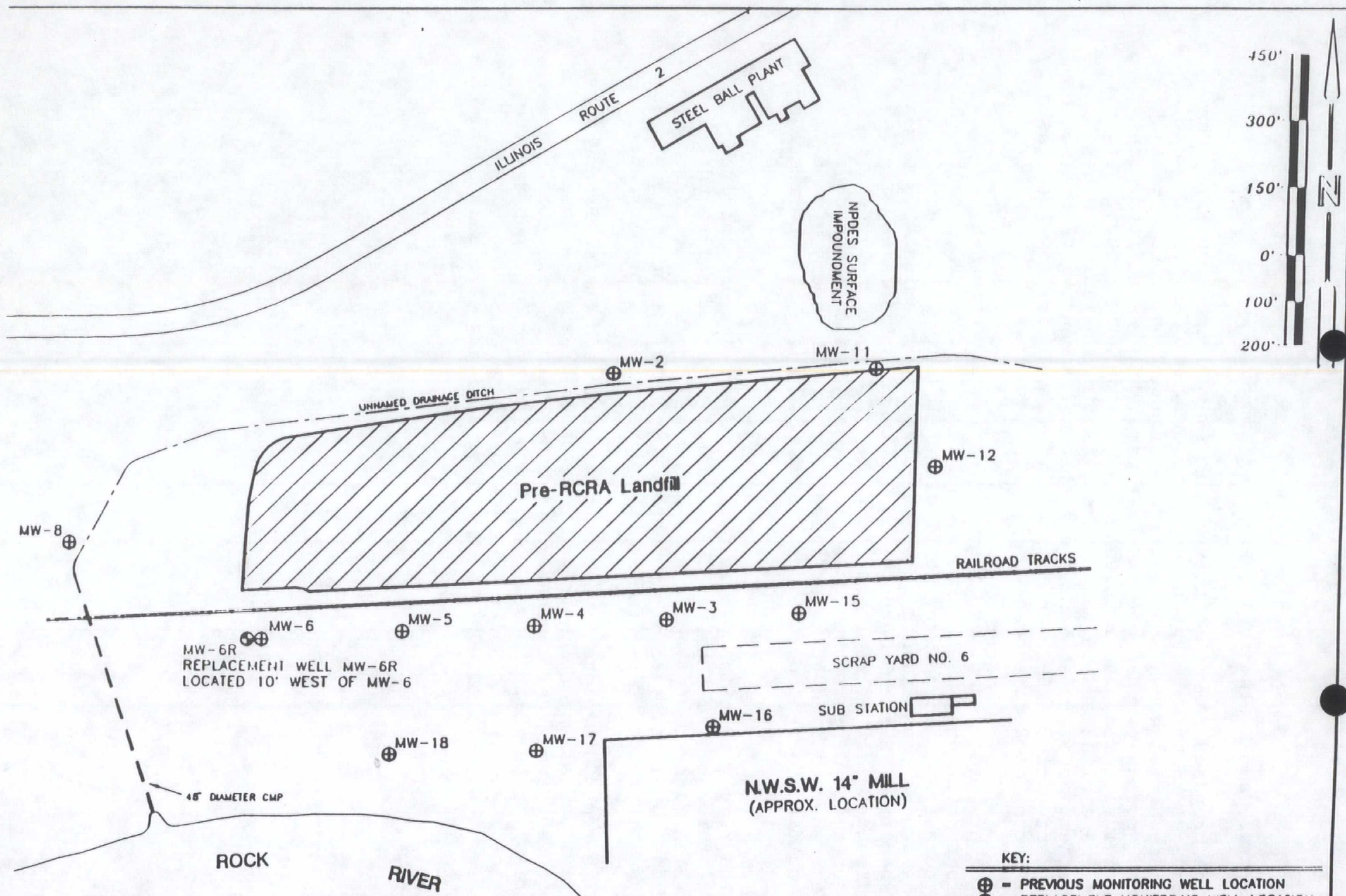
The proposed remedy in this permit renewal is essentially the same as that implemented under the original permit. It was chosen because, while the release of hazardous constituents to the groundwater has not yet been completely remediated, the original remedy has resulted in a considerable reduction in the release of hazardous constituents, while continuing to be protective of human health and the environment. TCE has not been detected since 1993, and DCE and vinyl chloride have decreased by a factor of 2 on average.

The proposed remedy provides for semiannual groundwater monitoring until such time as the facility can demonstrate that there are no longer any continuing releases of the identified hazardous constituents above the maximum contaminant levels specified in the Safe Drinking Water Act. The remedy also provides that if the concentrations of any of the identified hazardous constituents do not decrease, but increase so as to exceed specified "trigger" levels, then the remedy may be modified to incorporate additional more aggressive corrective measures.

The remedy contains provisions to prevent any unauthorized disturbances to the Pre-RCRA Landfill-affected soils and fill, which might conceivably cause exposure to humans or cause additional releases of the constituents to the environment. The use of groundwater affected by the releases is prohibited.

The remedy is protective of human health and the environment. A risk assessment demonstrated that under present release concentrations of the hazardous constituents, a lifetime cancer risk to the most exposed population (swimmers and unprotected waders at a point where the groundwater enters the Rock River) is less than 4 in 10,000,000. Ecological risks were also found to be minimal.





**Harding Lawson Associates**  
Engineering and  
Environmental Services

DRAWN  
EWS

PROJECT NUMBER  
10000 000

APPROVED  
[Signature]

DATE  
01/00/00

REVISED DATE

**Replacement Monitoring Well Location Map**  
Pre-RCRA Landfill  
Northwestern Steel & Wire Company  
Sterling, Illinois 61081

FIGURE

**2**







**Table 3. Northwestern Steel and Wire Company Pre-RCRA Landfill  
Groundwater Sampling**

TCE Analytical Results, ug/L

Monitoring Well	Permit Maximum	Date											
		8/2/89	9/14/89	4/9/91	8/11/93	11/9/93	2/8/94	5/10/94	8/16/94	5/16/95	11/16/95	5/16/96	11/13/96
MW - 1		<5	<5	<0.5									
MW - 2		<5	<5	<0.5	<5				<5	<5		<5	
MW - 3	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MW - 4	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MW - 5	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MW - 6	10	<5	<5	<0.5	<5				<5	<5	<5	<5	<5
MW - 7		<5	<5	<0.5									
MW - 8		<5	<5	<0.5	<5				<5	<5		<5	
MW - 9		<5	<5	<0.5									
MW - 10		<5	<5	<0.5									
MW - 11		4***	26	0.4***	<5				<5	<5		<5	
MW - 12		<5	<5	<0.5	<5				<5	<5		<5	
MW - 13		<5	<5	<0.5									
MW - 14		<5	<5	<0.5									
MW - 15	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MW - 16		<5	6	3.6	<5				<5	<5		<5	
MW - 17		<5	<5	1	<5				<5	<5		<5	
MW - 18		<5	<5	<0.5	<5				<5	<5		<5	
Average **	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5

\* Permit Maximum is the maximum concentration allowed by Section III.I.3.b of the permit. Note that both the individual limit and the average for the five wells must be exceeded before the implementation of the contingent corrective measure is necessary.

\*\* Mean taken over the concentrations in Wells MW - 3, MW - 4, MW - 5, MW - 6, MW - 15.

\*\*\* Compound present below reporting limit



**Table 2. Northwestern Steel and Wire Company Pre-RCRA Landfill  
Groundwater Sampling**

cis-1,2 DCE Analytical Results, ug/L

Monitoring Well	Permit Maximum	Date											
		8/2/89	9/14/89	4/9/91	8/11/93	11/9/93	2/8/94	5/10/94	8/16/94	5/16/95	11/16/95	5/16/96	11/13/96
MW - 1		<5	<5	<1									
MW - 2		<5	<5	<1	<5				4***	<5		<5	
MW - 3	230	140	130	20	14	36	100	94	37	10	30	31	10
MW - 4	1260	150	170	900	200	230	170	120	88	58	66	18	19
MW - 5	190	120	66	140	95	110	94	96	90	83	78	40	51
MW - 6	10	<5	<5	<1	<5				<5	<5	<5	<5	<5
MW - 7		<5	<5	<1									
MW - 8		<5	<5	<1	<5				<5	<5		<5	
MW - 9		<5	<5	<1									
MW - 10		<5	<5	<1									
MW - 11		3	24	190	<5				8	12		18	
MW - 12		<5	<5	<1	<5				<5	<5		<5	
MW - 13		<5	<5	<1									
MW - 14		<5	<5	<1	10								
MW - 15	230	41	21	34	54	14	6	17	5	8	3***	5	<5
MW - 16		92	72	58	220				51	54		32	
MW - 17		400	350	220	30				160	170		73	
MW - 18		10	8	30					5	4***		4***	
Average **	280	91	78	219	65	98	93	82	45	33	36	20	18

\* Permit Maximum is the maximum concentration allowed by Section III.I.3.b of the permit. Note that both the individual limit and the average for the five wells must be exceeded before the implementation of the contingent corrective measure is necessary.

\*\* Mean taken over the concentrations in Wells MW - 3, MW - 4, MW - 5, MW - 6, MW - 15.

\*\*\* Compound present below reporting limit



**Table 1. Northwestern Steel and Wire Company Pre-RCRA Landfill  
Groundwater Sampling**

Vinyl Chloride Analytical Results, ug/L

Monitoring Well	Permit Maximum	Date											
		8/2/89	9/14/89	4/9/91	8/11/93	11/9/93	2/8/94	5/10/94	8/16/94	5/16/95	11/16/95	5/16/96	11/13/96
MW - 1		<10	<10	<0.5									
MW - 2		<10	<10	<0.5	<10				<10	<10		<10	
MW - 3	290	160	200	51	94	160	270	250	130	52	230	120	59
MW - 4	630	290	320	520	290	340	350	260	240	210	240	66	140
MW - 5	180	50	15	130	56	49	38	39	22	84	26	32	26
MW - 6	20	<10	<10	<0.5	<10				<10	<10	<10	<10	<10
MW - 7		<10	<10	<0.5									
MW - 8		<10	<10	<0.5	<10				<10	<10		<10	
MW - 9		<10	<10	<0.5									
MW - 10		<10	<10	<0.5									
MW - 11		<10	<10	14	<10				<10	<10		<10	
MW - 12		<10	<10	<0.5	<10				<10	<10		<10	
MW - 13		<10	<10	<0.5									
MW - 14		<10	<10	<0.5									
MW - 15	20	<10	<10	1	<10	<10	<10	<10	<10	<10	<10	<10	<10
MW - 16		37	14	4	<10				7***	16		13	
MW - 17		240	230	110	250				220	230		110	
MW - 18		<10	<10	30	<10				<10	<10		<10	
Average **	150	104	111	141	92	140	167	140	82	73	103	34	49

\* Permit Maximum is the maximum concentration allowed by Section III.I.3.b of the permit. Note that both the individual limit and the average for the five wells must be exceeded before the implementation of the contingent corrective measure is necessary.

\*\* Mean taken over the concentrations in Wells MW - 3, MW - 4, MW - 5, MW - 6, MW - 15.

\*\*\* Compound present below reporting limit



# NORTHWESTERN

STEEL AND WIRE COMPANY

March 24, 1997

Mr. Normal R. Niedergang  
Acting Associate Division Director  
Office of RCRA  
United States Environmental Protection Agency  
Region V  
77 West Jackson Boulevard  
Chicago, IL 60604-3590

RECEIVED  
MAR 27 1997  
DIVISION FRONT OFFICE  
Waste, Pesticides & Toxics Division  
U.S. EPA - REGION 5

RE: ILD005263157

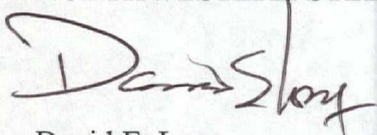
Dear Mr. Niedergang:

Northwestern Steel and Wire Company (NWSW) is submitting the progress report for the Corrective Measures Implementation (CMI) for NWSW's pre-RCRA landfill. This progress report covers the period September 22, 1996 through March 22, 1997. The preparation of the CMI was required by the Part B permit modification issued by the U.S. Environmental Protection Agency (U.S. EPA) on March 22, 1993.

Please contact me at extension 2451, if you have any questions or need additional information.

Very truly yours,

NORTHWESTERN STEEL AND WIRE COMPANY



David E. Long  
Environmental Manager

DEL/ksg  
Enclosure

CERTIFIED MAIL - RETURN RECEIPT  
P 594 430 995



**Northwestern Steel and Wire Company  
Corrective Measures Implementation  
Semi-Annual Progress Report  
September 22, 1996 through March 22, 1997**

**March 24, 1997**



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- A. Laboratory Analytical Reports



## **1.0 INTRODUCTION**

This semi-annual progress report (the Report) is the eighth progress report for the Corrective Measures Implementation (CMI) being conducted on the pre-RCRA landfill located at the Northwestern Steel and Wire Company (NWSW) facility in Sterling, Illinois. The Report covers the period of September 22, 1996 through March 22, 1997. The CMI is being conducted in accordance with the approved CMI operation of the corrective measures selected to protect human health and the environment. The CMI work plan contains the procedures necessary to monitor the performance of the corrective measures implemented at the pre-RCRA landfill.

### **1.1 History of the Pre-RCRA Landfill**

The landfill is located approximately 500 feet north of the Rock River (Figure 1) and covers approximately 13.5 acres and is approximately eight (8) to ten (10) feet deep. Solid waste was disposed in the pre-RCRA landfill beginning in 1974. The waste disposed in the pre-RCRA landfill consisted of slag, brick, construction debris, and two sludges generated by on-site pollution control systems. The pre-RCRA landfill was closed in 1980 and a new RCRA landfill opened to receive the two sludges only. This new landfill received a Part B permit for the disposal of these two sludges on November 4, 1987.

One condition of the RCRA landfill permit required a RCRA Facility Investigation (RFI) of the pre-RCRA landfill to determine if any releases from the landfill had occurred. The RFI was conducted in phases and determined that trichloroethylene (TCE), cis 1,2-dichloroethylene (DCE), and vinyl chloride (VC) were present in the groundwater beneath and downgradient from the landfill at elevated concentrations. Based on the findings of the RFI, the United States Environmental Protection Agency (U.S. EPA) required that NWSW conduct a Corrective Measures Study (CMS) to determine the best corrective measure alternative to achieve an acceptable level of risk within the exposed



population. The CMS consisted of three distinct tasks: 1) additional field tests, 2) a risk assessment, and 3) an evaluation of potential corrective measures and recommendation of the alternative(s) that would result in an acceptable risk to human health.

### **1.2 Description of the Selected CMI Remedy**

The various remediation technologies were evaluated as to their potential applicability to the pre-RCRA Landfill situation. This evaluation included no action, limited action, source control, groundwater remediation, and a combination of source control and groundwater remediation. The risk assessment showed that the present situation results in an acceptable level of risk to human health and the environment. Therefore the no action and limited action alternatives are acceptable means of complying with the goals of the CMS. Both result in the protection of human health. The limited action alternative, which is incorporated in the Part B permit modification effective March 22, 1993, offers the additional benefit of on-going monitoring which will provide for the detection of changes in concentrations of the compounds of concern (TCE, DCE and VC).

## **2.0 CMI OPERATIONS**

The corrective measure design for the pre-RCRA landfill consists of 1) a system to prevent unauthorized disturbance of the soil and fill in the pre-RCRA landfill, and 2) a system of continued groundwater monitoring until the landfill meets the cleanup objectives contained in the Part B permit. These corrective measures, that have not been altered since the last semi-annual progress report, are described below.

### **2.1 Prevention of Unauthorized Disturbance**

Unauthorized disturbance of the soil and fill in the pre-RCRA landfill are prevented by NWSW's existing facility security system.



NWSW has a facility security system in place to prevent access by unauthorized personnel to the pre-RCRA landfill. NWSW employs 14 full-time guards plus 3 guard sergeants. One sergeant supervises each eight-hour shift. The sergeant is responsible for conducting two complete inspections of the entire plant perimeter each shift to assure unauthorized personnel are not present. The pre-RCRA landfill area is included in these inspections.

The facility site occupied by NWSW is surrounded by a security fence with no trespassing signs posted at various places along the fence. Access to the facility is gained through secured gates, therefore preventing unauthorized personnel from entering the facility. The main access gate to the facility is equipped with a guard house which is occupied at all times. A gate located on the western edge of the facility, adjacent to the non-hazardous waste landfill, remains closed with access available to authorized personnel only. Additional signs have been posted around the pre-RCRA landfill as needed.

## **2.2 Groundwater Sampling Procedures**

The groundwater monitoring wells that are sampled as part of the CMI are shown in Figure 2. The Part B permit modification requires that monitoring wells MW-3, MW-4, MW-5, MW-6, and MW-15 be sampled every quarter during the first year and semi-annually thereafter, and that these wells plus monitoring wells MW-2, MW-8, MW-11, MW-12, MW-16, MW-17, and MW-18 be sampled annually.

On November 13, 1996 five monitoring wells were sampled as is the semi-annual requirement. The results of this sampling are being submitted with this progress report. The first year of required quarterly sampling was completed with the May 10, 1994 sampling event. NWSW has now moved into the semi-annual monitoring program.

According to Mrs. E. Kay Ingles of the Daily Analytical Laboratory the monitoring wells were sampled according to the following procedures.



Static water levels and well depth were measured in each well prior to sampling. Water levels were measured three consecutive times to the nearest 0.01 foot using a steel tape or electrical water level sensor, and recorded in the field notebook. Prior to collecting groundwater samples for chemical analysis, water standing in the well casing and filter pack was purged so that the sample would be obtained from water representative of groundwater in the aquifer. A minimum of three well casing volumes of water was removed using a bailer or an inertial pump, whichever was appropriate for the depth of the well. Purged water was monitored for pH and specific conductance. Purging was considered complete when a minimum of three well casing volumes had been purged and the pH and specific conductance parameters had stabilized. Purged groundwater was temporarily stored in dedicated plastic containers and pumped back into each monitoring well after completion of each sampling event.

Groundwater samples from each well were collected using a clean Teflon<sup>®</sup> bailer. Groundwater samples were carefully poured from the sampling bailer into pre-cleaned, laboratory-supplied glass VOA vials with Teflon<sup>®</sup> septum caps. The VOA vials were completely filled to eliminate air bubbles. Each groundwater sample was sealed and labeled using labels provided by the analytical laboratory. The sample identification for each sample was as follows:

- Site Identification (NWSW for Northwestern Steel and Wire )
- Monitoring Well Number (MW)
- Ground water sample number (GW1) increasing sequentially.

An example groundwater sample identification number is NWSW-MW1-GW2, which indicates that this sample is the second collected at the Northwestern Steel and Wire site from monitoring well MW-1. Samples were placed on ice in a cooler for sample preservation. Water temperature, pH, Eh, and specific conductance measurements were measured and recorded in the field notebook at the time of sampling. Field measurement equipment were calibrated daily according to the manufacturer's recommendations.



As part of the quality assurance program, one duplicate groundwater sample and one field equipment blank per sampling event was collected and submitted to the laboratory for contaminant analysis. In addition, a trip blank was submitted with each sample shipment and analyzed for VOCs. Samples were presented as described above and shipped to the analytical laboratory in a timely manner. Chain-of-custody forms for the samples were included in each shipment.

Groundwater monitoring and sampling equipment was decontaminated prior to use at each monitoring well using procedures discussed in Section 9.12 of the CMI to prevent the possibility of cross-contamination between monitoring wells. Care was taken to prevent the decontaminated well purging and sampling equipment from coming into contact with the ground surface.

When samples were received at the laboratory, sample containers were inspected for integrity, proper labeling, proper preservation, and properly completed chain of custody form(s). The samples were logged in by the laboratory and a unique laboratory sample number assigned to each sample. Laboratory sample numbers were entered into the laboratory's master log book and used on sample laboratory sheets. Other pertinent information such as the date and time of sample receipt were also recorded. Samples were stored in secured refrigerators at the laboratory.

Groundwater samples were analyzed for VC, DCE, and TCE. Detailed information on the analytical procedures such as potential interferences, precision and accuracy of the methodology, and method detection limits are identified in Test Methods for Evaluating Solid Waste, SW-846 (EPA, 1986). For each groundwater sampling episode, laboratory quality assurance/quality control (QA/QC) consisted of analyzing field blanks, field duplicates, and standard laboratory QA/QC samples. A complete laboratory analytical report from Daily Analytical Laboratories is provided as Appendix A.



## **2.3 Groundwater Sampling Results**

During the November 16 sampling event, monitoring wells MW-3 through MW-6 and MW-15 were sampled and analyzed for VC, DCE, and TCE. Tables 1, 2 and 3 summarize the results of the groundwater sampling historical analysis conducted for the CMI Program.

The results presented in Table 1 show that for the 5 wells sampled, 2 show concentrations below the VC detection level, 1 well (MW-4) shows an increase in VC concentration, and 2 wells (MW-3 and MW-5) show a decrease in VC concentration from the levels recorded on May 16, 1996, which was the last time these wells were sampled. For this sampling event, the VC concentration in MW-4 was within the calibration range of the Daily analytical instrumentation. Consequently, no sample dilution prior to analysis was necessary. The VC concentrations did not exceed the maximum allowable permit levels for any of the wells. The average VC concentration for the November 13, 1996 samples (49 micrograms per liter [ug/L]) did not exceed the allowable level of 150 ug/L specified under Section III I.3.b. of the Permit.

Table 2 provides the historical analytical results for DCE during the CMI Sampling Program and previous sampling results. The November 13, 1996 results for the 5 monitoring wells sampled shows DCE levels below detection limit in two wells, a slight increase in DCE concentration in 2 wells, and a decrease in DCE concentration in one well. The DCE concentrations did not exceed the maximum allowable permit levels for any of the wells tested. The average DCE concentrations for the November 13, 1996 samples (18 ug/L) did not exceed the allowable level of 280 ug/L specified under Section III I.3.b. of the Permit.

The analytical results for TCE are provided for in Table 3. The TCE concentration for each individual well was below the detection limit of 5 ug/L, and therefore below both



individual and average maximum concentrations allowed under Section III I.3.b. of the Permit.

### **3.0 PROBLEMS ENCOUNTERED**

No problems were encountered during the six months which are the subject of this report for the implementation of the CMI plan.

### **4.0 PERSONNEL CHANGES**

The project management organization remains the same as initially described in the CMI Work Plan including changes described in prior progress reports.

### **5.0 ACTIVITIES FOR THE NEXT REPORTING PERIOD**

#### **5.1 Description of Activities**

The planned activities for the next reporting period include the continued operation and maintenance of the corrective measures implementation program as described in the CMI work plan. This will include periodic landfill inspections and maintenance. The groundwater sampling program and monitoring of the performance of the corrective measures implementation will also continue in accordance with the CMI work plan.

#### **5.2 Schedule**

A schedule for future groundwater sampling and reporting requirements is provided in Figure 3.

### **6.0 TRIGGERING OF CONTINGENT CORRECTIVE MEASURES**

Section III.I of the permit establishes maximum allowable TCE, DCE and VC concentrations in monitoring wells MW-3, MW-4, MW-5, MW-6 and MW-15 and the acceptable mean concentration of these chemicals in these five wells. If both the



individual maximum concentration and the acceptable mean value are exceeded, then the contingent corrective measures must be implemented. As discussed in Section 2.3, Results of Groundwater Data, neither the individual nor average triggering concentrations for VC, DCE or TCE were exceeded. There has been no evidence of unauthorized disturbance of the pre-RCRA landfill soils or fill. Therefore, no contingent corrective measures have been triggered.

## **7.0 COMMUNITY RELATIONS ACTIVITIES**

The Community Relations Plan (CRP) was prepared to guide community relations activities during the implementation of corrective measures at NWSW's pre-RCRA Landfill. The purposes of the CRP are to make available to the local community, information concerning the corrective measures actions, and to facilitate communication between NWSW and the community. During this period of the CMI no citizens or interested parties have contacted NWSW concerning the CMI operations at the pre-RCRA Landfill.

### **7.1 Status of the Community Relations Objectives**

This section presents the status of the community relations objectives used during the implementation of the corrective measures to ensure that the community is included in the process. The following techniques were organized according to the objectives of the community relations program:

1. Objective: Provide Community with Information.

Technique: Establish Information Repository

Purpose: To provide site-specific information to the community.

Actions

Taken: The information repository was established at the following location:

Northwestern Steel and Wire Company  
121 Wallace Street, P.O. Box 618  
Sterling, IL 61081-0618



Telephone: (815) 625-2500

2. Objective: Respond to Community Concerns and Needs that Arise During the Corrective Measures Implementation.

Technique: Monitor Community Concerns.

Purpose: To continually assess and address community concerns throughout the implementation of the corrective measures.

Action

Taken: NWSW has identified David Long, Environmental Manager, as the contact person to whom citizens or groups can direct their written concerns and questions. NWSW has provided a telephone number for monitoring community concerns. The representative from NWSW is accessible by telephone 5 days a week, Monday through Friday, from 8:00 am to 5:00 pm at (815) 625-2500 ext. 2451.

Objective: Provide for Effective Management of the Community Relations Program.

4. Technique: Management of Community Relations Program.

Purpose: To address community concerns that emerge as a resulting during the implementation of the corrective measures.

Action

Taken: No community concerns have emerged during this period of the CMI. No comments or questions have been received during the period covered by this progress report.



**Table 1. Northwestern Steel and Wire Company Pre-RCRA Landfill  
Groundwater Sampling**

Vinyl Chloride Analytical Results, ug/L

Monitoring Well	Permit Maximum	Date											
		8/2/89	9/14/89	4/9/91	8/11/93	11/9/93	2/8/94	5/10/94	8/16/94	5/16/95	11/16/95	5/16/96	11/13/96
MW - 1		<10	<10	<0.5									
MW - 2		<10	<10	<0.5	<10				<10	<10		<10	
MW - 3	290	160	200	51	94	160	270	250	130	52	230	120	59
MW - 4	630	290	320	520	290	340	350	260	240	210	240	66	140
MW - 5	180	50	15	130	56	49	38	39	22	84	26	32	26
MW - 6	20	<10	<10	<0.5	<10				<10	<10	<10	<10	<10
MW - 7		<10	<10	<0.5									
MW - 8		<10	<10	<0.5	<10				<10	<10		<10	
MW - 9		<10	<10	<0.5									
MW - 10		<10	<10	<0.5									
MW - 11		<10	<10	14	<10				<10	<10		<10	
MW - 12		<10	<10	<0.5	<10				<10	<10		<10	
MW - 13		<10	<10	<0.5									
MW - 14		<10	<10	<0.5									
MW - 15	20	<10	<10	1	<10	<10	<10	<10	<10	<10	<10	<10	<10
MW - 16		37	14	4	<10				7***	16		13	
MW - 17		240	230	110	250				220	230		110	
MW - 18		<10	<10	30	<10				<10	<10		<10	
Average **	150	104	111	141	92	140	167	140	82	73	103	34	49

\* Permit Maximum is the maximum concentration allowed by Section III.I.3.b of the permit. Note that both the individual limit and the average for the five wells must be exceeded before the implementation of the contingent corrective measure is necessary.

\*\* Mean taken over the concentrations in Wells MW - 3, MW - 4, MW - 5, MW - 6, MW - 15.

\*\*\* Compound present below reporting limit



**Table 2. Northwestern Steel and Wire Company Pre-RCRA Landfill  
Groundwater Sampling**

cis-1,2 DCE Analytical Results, ug/L

Monitoring Well	Permit Maximum	Date											
		8/2/89	9/14/89	4/9/91	8/11/93	11/9/93	2/8/94	5/10/94	8/16/94	5/16/95	11/16/95	5/16/96	11/13/96
MW - 1		<5	<5	<1									
MW - 2		<5	<5	<1	<5				4***	<5		<5	
MW - 3	230	140	130	20	14	36	100	94	37	10	30	31	10
MW - 4	1260	150	170	900	200	230	170	120	88	58	66	18	19
MW - 5	190	120	66	140	95	110	94	96	90	83	78	40	51
MW - 6	10	<5	<5	<1	<5				<5	<5	<5	<5	<5
MW - 7		<5	<5	<1									
MW - 8		<5	<5	<1	<5				<5	<5		<5	
MW - 9		<5	<5	<1									
MW - 10		<5	<5	<1									
MW - 11		3	24	190	<5				8	12		18	
MW - 12		<5	<5	<1	<5				<5	<5		<5	
MW - 13		<5	<5	<1									
MW - 14		<5	<5	<1	10								
MW - 15	230	41	21	34	54	14	6	17	5	8	3***	5	<5
MW - 16		92	72	58	220				51	54		32	
MW - 17		400	350	220	30				160	170		73	
MW - 18		10	8	30					5	4***		4***	
Average **	280	91	78	219	65	98	93	82	45	33	36	20	18

\* Permit Maximum is the maximum concentration allowed by Section III.I.3.b of the permit. Note that both the individual limit and the average for the five wells must be exceeded before the implementation of the contingent corrective measure is necessary.

\*\* Mean taken over the concentrations in Wells MW - 3, MW - 4, MW - 5, MW - 6, MW - 15.

\*\*\* Compound present below reporting limit



**Table 3. Northwestern Steel and Wire Company Pre-RCRA Landfill  
Groundwater Sampling**

TCE Analytical Results, ug/L

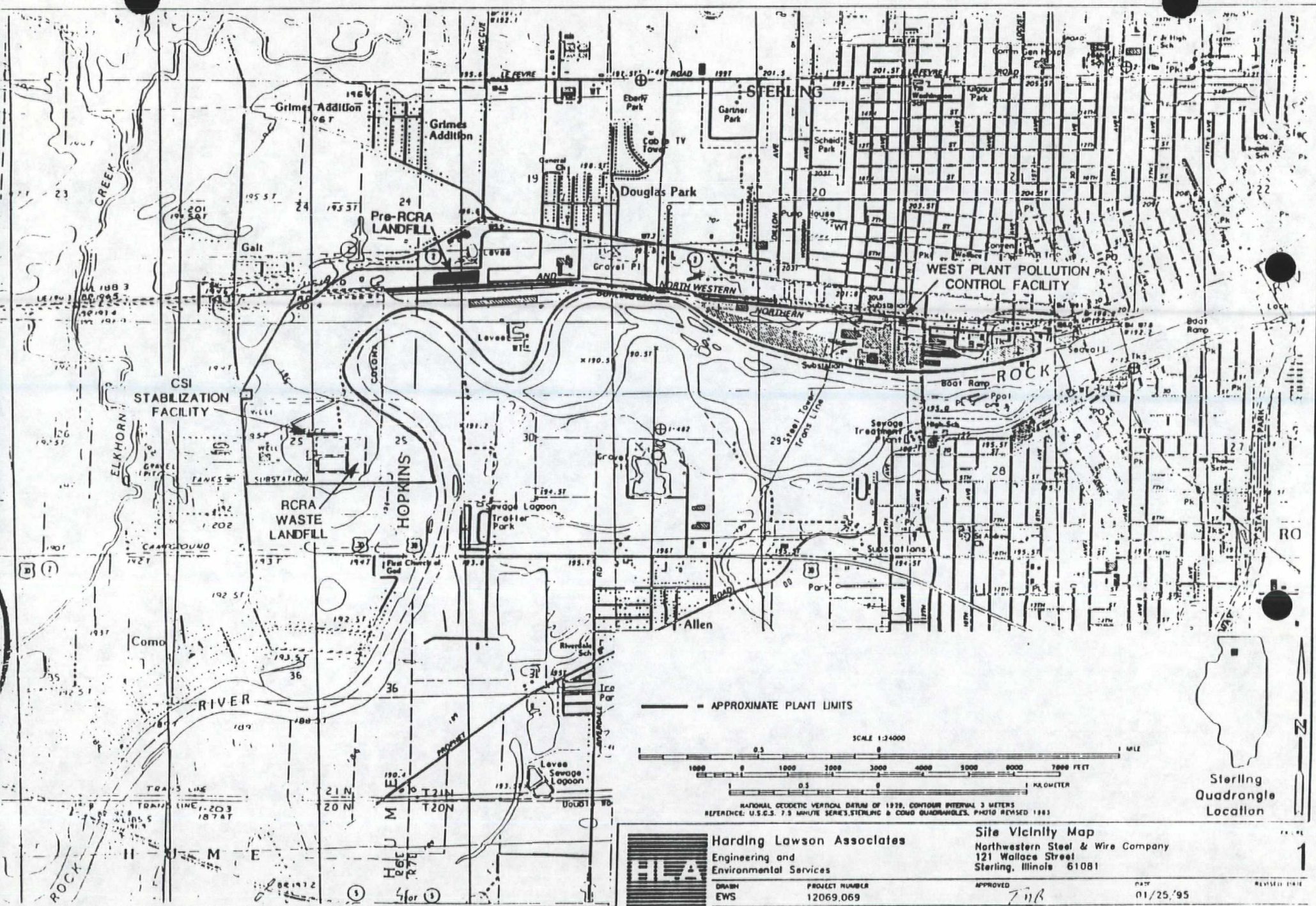
Monitoring Well	Permit Maximum	Date											
		8/2/89	9/14/89	4/9/91	8/11/93	11/9/93	2/8/94	5/10/94	8/16/94	5/16/95	11/16/95	5/16/96	11/13/96
MW - 1		<5	<5	<0.5									
MW - 2		<5	<5	<0.5	<5				<5	<5		<5	
MW - 3	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MW - 4	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MW - 5	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MW - 6	10	<5	<5	<0.5	<5				<5	<5	<5	<5	<5
MW - 7		<5	<5	<0.5									
MW - 8		<5	<5	<0.5	<5				<5	<5		<5	
MW - 9		<5	<5	<0.5									
MW - 10		<5	<5	<0.5									
MW - 11		4***	26	0.4***	<5				<5	<5		<5	
MW - 12		<5	<5	<0.5	<5				<5	<5		<5	
MW - 13		<5	<5	<0.5									
MW - 14		<5	<5	<0.5									
MW - 15	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MW - 16		<5	6	3.6	<5				<5	<5		<5	
MW - 17		<5	<5	1	<5				<5	<5		<5	
MW - 18		<5	<5	<0.5	<5				<5	<5		<5	
Average **	10	<5	<5	<0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5

\* Permit Maximum is the maximum concentration allowed by Section III.1.3.b of the permit. Note that both the individual limit and the average for the five wells must be exceeded before the implementation of the contingent corrective measure is necessary.

\*\* Mean taken over the concentrations in Wells MW - 3, MW - 4, MW - 5, MW - 6, MW - 15.

\*\*\* Compound present below reporting limit





Sterling  
Quadrangle  
Location

**Harding Lawson Associates**  
 Engineering and  
 Environmental Services

**Site Vicinity Map**  
 Northwestern Steel & Wire Company  
 121 Wallace Street  
 Sterling, Illinois 61081

DRAWN EWS PROJECT NUMBER 12069.069 APPROVED 7/18 PART 01/25/95 REVISION DATE





January 25, 1995

12069,069

Mr. Norman R. Niedergang  
Acting Associate Division Director  
Office of RCRA  
United States Environmental Protection Agency  
Region V  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

RECEIVED

JAN 27 1995

OFFICE OF RCRA  
WASTE MANAGEMENT DIVISION  
EPA, REGION V

Permit Modification *CMI progress Report*  
ILD005263157

Dear Mr. Niedergang:

Harding Lawson Associates (HLA) is submitting on behalf of Northwestern Steel and Wire Company (NSW) one copy of the progress report for the Corrective Measures Implementation (CMI) for NSW's pre-RCRA landfill. This progress report covers the period March 22 through September 22, 1994. The preparation of the CMI was required by the Part B permit modification issued by the U.S. Environmental Protection Agency (U.S. EPA) on March 22, 1993.

Please contact David E. Long of NSW at (815) 625-2500, extension 2451, or either of the undersigned if you have any questions or need additional information.

Very truly yours,

HARDING LAWSON ASSOCIATES

*Timothy M. Bryan*  
Timothy M. Bryan P.G.  
Associate Geologist

*Sandra L. Sroonian*  
Sandra L. Sroonian  
Managing Principal

TMB/tak/jd

Enclosure

NSW/1006941K.WP



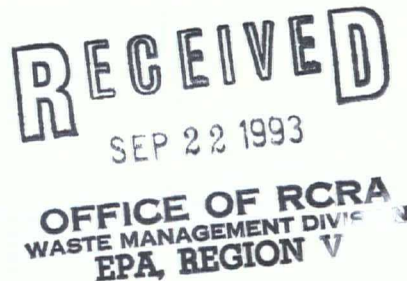
**Harding Lawson Associates**



September 21, 1993

12069,11.1

Mr. Norman R. Niedergang  
Acting Associate Division Director  
Office of RCRA  
United States Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590



**Permit Modification**  
**ILD 005 263 157**

Dear Mr. Niedergang:

Harding Lawson Associates (HLA) is submitting on behalf of Northwestern Steel and Wire Company (NSW) an original and two copies of the progress report for the Corrective Measures Implementation (CMI) for NSW's pre-RCRA landfill. This progress report covers the period March 22 - September 22, 1993. The preparation of the CMI was required by the Part B permit modification issued by the U.S. Environmental Protection Agency (USEPA) on March 22, 1993.

Please contact David E. Long of NSW at (815) 625-2500, extension 2451, or either of the undersigned if you have any questions or need additional information.

Very truly yours,

**HARDING LAWSON ASSOCIATES**

Michael L. Smith, P.E.  
Managing Associate Engineer

Robert W. Parsons, P.E.  
Vice President, Midwest Regional Manager

MLS/RWP/tk

enclosure

12069,11.1/NWS/0914931K.WP/1





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

JUL 08 1993

REPLY TO THE ATTENTION OF:

Certified Mail # P 993 304 580  
Return Receipt Requested

HRP-8J

Mr. Robert W. Martin  
Vice President, Purchasing  
Northwestern Steel and Wire Company  
121 Wallace Street  
Sterling, Illinois 61081

Re: CMI Plan - Pre-RCRA Landfill  
ILD 005 263 157

Dear Mr. Martin:

We have reviewed the Northwestern Steel and Wire Company Corrective Measures Implementation Plan - Pre-RCRA Landfill (CMI Plan), submitted by Mr. Michael Smith of Harding Lawson Associates on June 21, 1993, and we have determined that the submission meets the requirements of the Company's Resource Conservation and Recovery Act (RCRA) permit modification, which became effective on March 22, 1993. Therefore, the CMI Plan is hereby approved as of JUL 08 1993, subject to the following conditions:

1. Should any monitoring well be damaged, or otherwise be deemed to be unusable, to the extent that it needs to be replaced, the Permittee shall notify the United States Environmental Protection Agency (U.S. EPA), and submit information addressing the reasons for the need for a replacement well, the procedures for decommissioning and abandoning the damaged well, and the particulars regarding the location and construction of the proposed replacement well. The Permittee shall not proceed with the replacement until U.S. EPA approval is received. (Reference: page 12 of CMI Plan)
2. Each semi-annual progress report shall contain all applicable items required by Condition III.M.1. of the permit modification. (Reference: page 16 of CMI Plan)

In accordance with the provisions of Condition III.F.3. of the permit modification, implementation of the workplan shall begin within 30 days of the date of this approval letter.



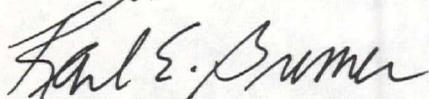
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P-177



If you have any questions regarding this matter, please contact Gale Hruska of my staff, at (312) 886-0989. It would also be appreciated if you could let Mr. Hruska know as early as possible of the date of the first scheduled groundwater sampling event, so he could make plans to be there.

Sincerely,

A handwritten signature in dark ink, appearing to read "Karl E. Bremer". The signature is fluid and cursive, with the first name "Karl" being more prominent.

Karl E. Bremer, Chief  
RCRA Permitting Branch

cc: Lawrence Eastep, IEPA



P 993 304 580



# Receipt for Certified Mail

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

Sent to <b>ROBERT MARTIN</b> <b>NORTHWESTERN STEEL &amp; WIRE</b>	
Street and No. <b>121 Wallace Street</b>	
P.O., State and ZIP Code <b>Sterling, Illinois</b>	
Postage	<b>\$ 29</b>
Certified Fee	<b>100</b>
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	<b>100</b>
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	<b>\$ 229</b>
Postmark or Date	



PS Form 3800, June 1991

Gale Hruska, RPB HRP-8J 14005263157



**STICK POSTAGE STAMPS TO ARTICLE TO COVER FIRST CLASS POSTAGE,  
CERTIFIED MAIL FEE, AND CHARGES FOR ANY SELECTED OPTIONAL SERVICES (see front).**

1. If you want this receipt postmarked, stick the gummed stub to the right of the return address leaving the receipt attached and present the article at a post office service window or hand it to your rural carrier (no extra charge).
2. If you do not want this receipt postmarked, stick the gummed stub to the right of the return address of the article, date, detach and retain the receipt, and mail the article.
3. If you want a return receipt, write the certified mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.
4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.
5. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.
6. Save this receipt and present it if you make inquiry.

105603-92-B-0054



**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

**3. Article Addressed to:**

Robert Martin  
Northwestern Steel & Wire Co  
121 Wallace Street  
Sterling, Illinois 61081

**4a. Article Number**

P 993 304 580

**4b. Service Type**

- ☐ Registered ☐ Insured  
☒ Certified ☐ COD  
☐ Express Mail ☒ Return Receipt for Merchandise

**7. Date of Delivery**

7-10-93

**5. Signature (Addressee)****8. Addressee's Address (Only if requested and fee is paid)****6. Signature (Agent)**

NW Steel & Wire



United States Postal Service

Official Business



PENALTY FOR PRIVATE  
USE, \$300

Print your name, address and ZIP Code here

U.S. Environmental Protection Agency  
Waste Management Division-RPB HRP-8J  
77 W. Jackson Boulevard  
Chicago, Illinois 60604-3590

ATTN: G. Hruska



If you have any questions regarding this matter, please contact Gale Hruska of my staff, at (312) 886-0989. It would also be appreciated if you could let Mr. Hruska know as early as possible of the date of the first scheduled groundwater sampling event, so he could make plans to be there.

Sincerely,

ORIGINAL SIGNED BY  
KARL E. BREMER

Karl E. Bremer, Chief  
RCRA Permitting Branch

cc: Lawrence Eastep, IEPA

7/1/93

	TYP.	AUTH.	IL. CHIEF	IN. CHIEF	MI. CHIEF	MN/WI CHIEF	OH. CHIEF	TPS CHIEF	SWB CHIEF	WMD DIR
INIT. DATE		GRA 7-6-93	<i>[Signature]</i> 7/6/93							

KLP  
7/1/93



Harding Lawson Associates

Received 6/21/93  
grh



June 21, 1993

Mr. Norman R. Niedergang  
Acting Associate Division Director  
Office of RCRA  
United States Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

RE: Permit Modification  
ILD 005 263 157

Dear Mr. Niedergang:

Harding Lawson Associates (HLA) is submitting on behalf of Northwestern Steel and Wire Company (NSW), an original and two copies of the Corrective Measures Implementation (CMI) workplans for NSW's pre-RCRA landfill. The preparation of the CMI workplans was required by the Part B permit modification issued by the U.S. Environmental Protection Agency (USEPA) on March 22, 1993.

The CMI workplan consists of the following plans, along with associated tables, plates, and appendices:

- Program Management Plan
- Community Relations Plan
- Corrective Measures Design
- Operation and Maintenance Plan
- Groundwater Sampling and Analysis Plan
- Cost Estimate
- Project Schedule
- Health and Safety Plan
- Reports
- Decommission and Decontamination Plan

As discussed with Mr. Gale Hruska of the USEPA, information which has been submitted previously to USEPA during the RCRA facility investigation is incorporated unchanged in the CMI workplans. Please contact David E. Long of NSW at (815) 625-2500, extension 2451, or me if you have any questions or need additional information.

Sincerely,

A handwritten signature in cursive script, reading "Michael L. Smith".

Michael L. Smith, P.E.  
Managing Associate Engineer

12069,059.14/NWS/0614931K.WP/1

Engineering and  
Environmental Services

One Tower Lane, Suite 1300, Oakbrook Terrace, IL 60181 708/571-2162 Telecopy 708/571-0439  
A Subsidiary of Harding Associates • Offices Nationwide

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September 4, 1992

Gale R. Hruska  
Environmental Scientist  
U.S. Environmental Protection Agency  
RCRA Permitting Branch  
Region 5  
Mail Drop HRP-85  
77 West Jackson  
Chicago, IL 60604

RECEIVED

SEP 9 1992

OFFICE OF RCRA  
Waste Management Division  
U.S. EPA, REGION V

Dear Gale:

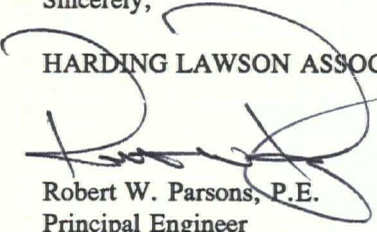
Thank you very much for the opportunity to meet last Monday, August 31 to again discuss USEPA's Draft Corrective Measures Implementation. We appreciate your willingness to discuss Northwestern Steel and Wire Company's concerns regarding the triggering of contingent corrective measures.

As we discussed during the meeting and again by telephone on Wednesday, September 2, 1992, the MCL for cis-1,2 Dichloroethylene is indicated to be .07 mg/l in the attached April 1991 Drinking Water Regulations and Health Advisories published by the Office of Water, U.S. Environmental Protection Agency. A copy of this is attached for your reference.

If you have any questions on the attached or require additional information please do not hesitate to call me at (708) 571-2162.

Sincerely,

HARDING LAWSON ASSOCIATES

  
Robert W. Parsons, P.E.  
Principal Engineer

cc: Dave Long - NSW w/attachment

NSW\0904926C.01



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# DRINKING WATER REGULATIONS AND HEALTH ADVISORIES

by

Office of Water  
U.S. Environmental Protection Agency  
Washington, D.C.  
202-382-7571

SAFE DRINKING WATER HOTLINE  
1-800-426-4791  
Monday thru Friday, 8:30 AM to 5:00 PM EST

April 1991

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## LEGEND

Abbreviations column descriptions are:

- MCLG - Maximum Contaminant Level Goal. A non-enforceable concentration of a drinking water contaminant that is protective of adverse human health effects and allows an adequate margin of safety.
- MCL - Maximum Contaminant Level. Maximum permissible level of a contaminant in water which is delivered to any user of a public water system.
- RfD - Reference Dose. An estimate of a daily exposure to the human population that is likely to be without appreciable risk of deleterious effects over a lifetime.
- DWEL - Drinking Water Equivalent Level. A lifetime exposure concentration protective of adverse, non-cancer health effects, that assumes all of the exposure to a contaminant is from a drinking water source.

(\*) The codes for the Status Reg and Status HA columns are as follows:

- F - final  
D - draft  
L - listed for regulation  
P - proposed (Phase II and V proposals)

Other codes found in the table include the following:

- NA - not applicable  
PS - performance standard 0.5 NTU - 1.0 NTU  
TT - treatment technique
- \*\*** - No more than 5% of the samples per month may be positive. For systems collecting fewer than 40 samples/month, no more than 1 sample per month may be positive.
- \*\*\*** - guidance
- Large discrepancies between Lifetime and Longer-term HA values may occur because of the Agency's conservative policies, especially with regard to carcinogenicity, relative source contribution, and less than lifetime exposures in chronic toxicity testing. These factors can result in a cumulative UF (uncertainty factor) of 10 to 1000 when calculating a Lifetime HA.



# DRINKING WATER STANDARDS AND HEALTH ADVISORIES

April 1991

Page 1

Chemicals	Standards			Status HA*	Health Advisories								Cancer Group
	Status Reg.*	MCLG (mg/l)	MCL (mg/l)		10-kg Child			70-kg Adult					
					One-day mg/l	Ten-day mg/l	Longer- term mg/l	Longer- term mg/l	RfD mg/kg/day	DWEL mg/l	Lifetime mg/l	mg/l at 10 <sup>-4</sup> Cancer Risk	
ORGANICS													
Acenaphthylene	-	-	-	-	-	-	-	-	0.06	-	-	-	-
Acifluorfen	-	-	-	F	2	2	0.1	0.4	0.013	0.4	-	0.1	B2
Acrylamide	F	zero	TT	F	1.5	0.03	0.02	0.07	0.0002	0.007	-	0.001	B2
Acrylonitrile	L	-	-	D	0.02	0.02	0.001	0.004	0.0001	0.004	-	0.007	B1
Adipates (diethylhexyl)	P	0.5	0.5	-	-	-	-	-	0.7	20	0.5	-	C
Alachlor	F	zero	0.002	F	0.1	0.1	-	-	0.01	0.4	-	0.04	B2
Aldicarb	P	0.001	0.003	F	-	-	-	-	0.0002	0.004	0.001	-	D
Aldicarb sulfone	P	0.002	0.003	F	-	-	-	-	0.0003	0.1	0.002	-	D
Aldicarb sulfoxide	P	0.001	0.003	F	-	-	-	-	0.0002	0.004	0.001	-	D
Aldrin	-	-	-	D	0.0003	0.0003	0.0003	0.0003	0.00003	0.001	-	0.0002	B2
Ametryn	-	-	-	F	9	9	0.9	3	0.009	0.3	0.06	-	D
Ammonium Sulfamate	-	-	-	F	20	20	20	80	0.28	8	2	-	D
Anthracene (PAH)	-	-	-	-	-	-	-	-	0.3	-	-	-	D
Atrazine	F	0.003	0.003	F	0.1	0.1	0.05	0.2	0.005	0.2	0.003	-	C
Baygon	-	-	-	F	0.04	0.04	0.04	0.1	0.004	0.1	0.003	-	C
Bentazon	-	-	-	F	0.3	0.3	0.3	0.9	0.0025	0.09	0.02	-	D
Benz(a)anthracene (PAH)	P	zero	0.0001	-	-	-	-	-	-	-	-	-	B2
Benzene	F	zero	0.005	F	0.2	0.2	-	-	-	-	-	0.1	A
Benzo(a)pyrene (PAH)	P	zero	0.0002	-	-	-	-	-	-	-	-	-	B2*
Benzo(b)fluoranthene (PAH)	P	zero	0.0002	-	-	-	-	-	-	-	-	-	B2
Benzo(g,h,i)perylene (PAH)	-	-	-	-	-	-	-	-	-	-	-	-	D
Benzo(k)fluoranthene (PAH)	P	zero	0.0002	-	-	-	-	-	-	-	-	-	B2
bis-2-Chloroisopropyl ether	-	-	-	F	4	4	4	13	0.04	1	0.3	-	D
Bromacil	-	-	-	F	5	5	3	9	0.13	5	0.09	-	C
Bromobenzene	-	-	-	D	-	-	-	-	-	-	-	-	-

\* Under review.

NOTE: Anthracene and Benzo(g,h,i)perylene -- not proposed in Phase V.



Chemicals	Standards			Status HA*	Health Advisories								Cancer Group
	Status Reg.*	MCLG (mg/l)	MCL (mg/l)		10-kg Child			70-kg Adult					
					One-day mg/l	Ten-day mg/l	Longer- term mg/l	Longer- term mg/l	RfD mg/kg/day	DWEL mg/l	Lifetime mg/l	mg/l at 10 <sup>-4</sup> Cancer Risk	
Bromochloroacetonitrile	L	-	-	D	-	-	-	-	-	-	-	-	-
Bromochloromethane	-	-	-	F	50	1	1	5	0.013	0.5	0.09	-	-
Bromodichloromethane (THM)	-	-	0.1	D	7	7	4	13	0.02	0.6	-	0.03	B2
Bromoform (THM)	L	-	0.1	D	5	2	2	6	0.02	0.6	-	0.4	B2
Bromomethane	-	-	-	F	0.1	0.1	0.1	0.5	0.001	0.05	0.01	-	D
Butyl benzyl phthalate (PAE)	P	0.1	0.01	-	-	-	-	-	0.2	6	-	-	C
Butylate	-	-	-	F	2	2	1	4	0.05	2	0.35	-	D
Butylbenzene n-	-	-	-	D	-	-	-	-	-	-	-	-	-
Butylbenzene sec-	-	-	-	D	-	-	-	-	-	-	-	-	-
Butylbenzene tert-	-	-	-	D	-	-	-	-	-	-	-	-	-
Carbaryl	-	-	-	F	1	1	1	1	0.1	4	0.7	-	D
Carbofuran	F	0.04	0.04	F	0.05	0.05	0.05	0.2	0.005	0.2	0.04	-	E
Carbon Tetrachloride	F	zero	0.005	F	4	0.2	0.07	0.3	0.0007	0.03	-	0.03	B2
Carboxin	-	-	-	F	1	1	1	4	0.1	4	0.7	-	D
Chloral Hydrate	L	-	-	D	-	-	-	-	-	-	-	-	-
Chloramben	-	-	-	F	3	3	0.2	0.5	0.015	0.5	0.1	-	D
Chlordane	F	zero	0.002	F	0.06	0.06	-	-	0.00006	0.002	-	0.003	B2
Chlorodibromomethane (THM)	L	-	0.1	D	7	7	2	8	0.02	0.7	0.02	-	C
Chloroethane	L	-	-	D	-	-	-	-	-	-	-	-	-
Chloroform (THM)	L	-	0.1	D	4	4	0.1	0.5	0.01	0.5	-	0.6	B2
Chloromethane	L	-	-	F	9	0.4	0.4	1	0.004	0.1	0.003	-	C
Chlorophenol (2-)	L	-	-	D	0.05	0.05	0.05	0.2	0.005	0.2	0.04	-	D
p-Chlorophenyl methyl sulfide/sulfone/sulfoxide	D	-	-	-	-	-	-	-	-	-	-	-	-
Chloropicrin	L	-	-	-	-	-	-	-	-	-	-	-	-
Chlorothalonil	-	-	-	F	0.2	0.2	0.2	0.5	0.015	0.5	-	0.15	B2
Chlorotoluene o-	L	-	-	F	2	2	2	7	0.02	0.7	0.1	-	D
Chlorotoluene p-	L	-	-	F	2	2	2	7	0.02	0.7	0.1	-	D
Chlorpyrifos	-	-	-	D	0.03	0.03	0.03	0.1	0.003	0.1	0.02	-	D
Chrysene (PAH)	P	zero	0.0002	-	-	-	-	-	-	-	-	-	B2
Cyanazine	L	-	-	F	0.1	0.1	0.02	0.07	0.002*	0.07*	0.01*	-	D*

\* Under review.

NOTE:\* Chrysene was proposed in second option.



[illegible]



Chemicals	Standards			Status HA*	Health Advisories								Cancer Group
	Status Reg.*	MCLG (mg/l)	MCL (mg/l)		10-kg Child			70-kg Adult					
					One-day mg/l	Ten-day mg/l	Longer- term mg/l	Longer- term mg/l	RfD mg/kg/day	DWEL mg/l	Lifetime mg/l	mg/l at 10 <sup>-4</sup> Cancer Risk	
Dichloropropene (1,3-)	L	-	-	F	0.03	0.03	0.03	0.1	0.0003	0.01	-	0.02	B2
Dieldrin	L	-	-	F	0.0005	0.0005	0.0005	0.002	0.00005	0.002	-	0.0002	B2
Diethyl phthalate (PAE)	-	-	-	D	-	-	-	-	0.8	30	5	-	D
Diethylhexyl phthalate (PAE)	P	zero	0.004	D	-	-	-	-	0.02	0.7	-	0.3	B2*
Diisopropyl methylphosphonate	-	-	-	F	8	8	8	30	0.08	3	0.6	-	D
Dimethrin	-	-	-	F	10	10	10	40	0.3	10	2	-	D
Dimethyl methylphosphonate	-	-	-	D	-	-	-	-	-	-	-	-	-
Dimethyl phthalate (PAE)	-	-	-	-	-	-	-	-	-	-	-	-	D
1,3-Dinitrobenzene	-	-	-	F	0.04	0.04	0.04	0.14	0.0001	0.005	0.001	-	D
Dinitrotoluene (2,4-)	L	-	-	D	-	-	-	-	-	-	-	-	-
2,4-/2,6-Dinitrotoluene	L	-	-	D	-	-	-	-	-	-	-	-	B2
Dinoseb	P	0.007	0.007	F	0.3	0.3	0.01	0.04	0.001	0.04	0.007	-	D
Dioxane p-	-	-	-	F	4	0.4	-	-	-	-	-	0.7	B2
D, Fenamid	-	-	-	F	0.3	0.3	0.3	1	0.03	1	0.2	-	D
Diquat	P	0.02	0.02	-	-	-	-	-	0.0022	0.08	0.02	-	D
Disulfoton	-	-	-	F	0.01	0.01	0.003	0.009	0.00004	0.001	0.0003	-	E
1,4-Dithiane	-	-	-	D	-	-	-	-	-	-	-	-	-
Diuron	-	-	-	F	1	1	0.3	0.9	0.002	0.07	0.01	-	D
Endothall	P	0.1	0.1	F	0.8	0.8	0.2	0.2	0.02	0.7	0.1	-	D
Endrin	P	0.002	0.002	F	0.02	0.02	0.003	0.01	0.0003	0.01	0.002	-	D
Epichlorohydrin	F	zero	TT	F	0.1	0.1	0.07	0.07	0.002	0.07	-	0.4	B2
Ethylbenzene	F	0.7	0.7	F	30	3	1	3	0.1	3	0.7	-	D
Ethylene dibromide (EDB)	F	zero	0.00005	F	0.008	0.008	-	-	-	-	-	0.00004	B2
Ethylene glycol	-	-	-	F	20	6	6	20	2	40	7	-	D
ETU	L	-	-	F	0.3	0.3	0.1	0.4	0.00008	0.003	-	0.006**	B2
Fenamiphos	-	-	-	F	0.009	0.009	0.005	0.02	0.00025	0.009	0.002	-	D
Fluometuron	-	-	-	F	2	2	2	5	0.013	0.4	0.09	-	D
Fluorene (PAH)	-	-	-	-	-	-	-	-	0.04	-	-	-	D
Fluorotrichloromethane	-	-	-	F	7	7	3	10	0.3	10	2	-	D
Fog Oil	-	-	-	D	-	-	-	-	-	-	-	-	-

\* Under review.

\*\* Not verified yet.



Chemicals	Standards			Status HA*	Health Advisories								Cancer Group
	Status Reg.*	MCLG (ng/l)	MCL (mg/l)		10-kg Child			70-kg Adult					
					One-day mg/l	Ten-day mg/l	Longer- term mg/l	Longer- term mg/l	RfD mg/kg/day	DWEL mg/l	Lifetime mg/l	mg/l at 10 <sup>-4</sup> Cancer Risk	
Fonofos	-	-	-	F	0.02	0.02	0.02	0.07	0.002	0.07	0.01	-	D
Formaldehyde	-	-	-	D	10	5	5	20	0.15	5	1	-	B1
Gasoline, unleaded (benzene)	-	-	-	D	-	-	-	-	-	-	0.005	-	-
Glyphosate	P	0.7	0.7	F	20	20	1	1	0.1	4	0.7	-	D
Heptachlor	F	zero	0.0004	F	0.01	0.01	0.005	0.005	0.0005	0.02	-	0.0008	B2
Heptachlor epoxide	F	zero	0.0002	F	0.01	-	0.0001	0.0001	1.3E-05	0.0004	-	0.0004	B2
Hexachlorobenzene	P	zero	0.001	F	0.05	0.05	0.05	0.2	0.0008	0.03	-	0.002	B2
Hexachlorobutadiene	-	-	-	F	0.3	0.3	0.1	0.4	0.002	0.07	0.001	-	C
Hexachlorocyclopentadiene	P	0.05	0.05	-	-	-	-	-	0.007	0.2	-	-	D
Hexachloroethane	-	-	-	F	5	5	0.1	0.5	0.001	0.04	0.001	-	C
Hexane (n-)	-	-	-	F	10	4	4	10	-	-	-	-	D
Hexazinone	-	-	-	F	3	3	3	9	0.033	1	0.2	-	D
HMX	-	-	-	F	5	5	5	20	0.05	2	0.4	-	D
Hypochlorite	L	-	-	-	-	-	-	-	-	-	-	-	-
Hypochlorous acid	L	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene (PAH)	P	zero	0.0004	D	-	-	-	-	-	-	-	-	B2
Isophorone	L	-	-	D	15	15	15	15	0.2	7	0.1	-	C
Isopropyl methylphosphonate	-	-	-	D	-	-	-	-	-	-	-	-	D
Isopropylbenzene	-	-	-	D	-	-	-	-	-	-	-	-	-
Lindane	F	2E-4	0.0002	F	1	1	0.03	0.1	0.0003	0.01	0.0002	-	C
Malathion	-	-	-	D	0.2	0.2	0.2	0.8	0.02	0.8	0.2	-	D
Maleic hydrazide	-	-	-	F	10	10	5	20	0.5	20	4	-	D
MCPA	-	-	-	F	0.1	0.1	0.1	0.4	0.0015	0.05	0.01	-	E
Methomyl	-	-	-	F	0.3	0.3	0.3	0.3	0.025	0.9	0.2	-	D
Methoxychlor	F	0.04	0.04	F	6	2	0.5	0.2	0.005	0.2	0.04	-	D
Methyl ethyl ketone	L	-	-	F	80	8	3	9	0.00005	0.9	0.2	-	D
Methyl parathion	-	-	-	F	0.3	0.3	0.03	0.1	0.00025	0.009	0.002	-	D
Methyl tert butyl ether	L	-	-	D	3	3	0.5	2	0.005	0.2	0.04	-	D
Metolachlor	L	-	-	F	2	2	2	5	0.15	5	0.1	-	C
Metribuzin	L	-	-	F	5	5	0.3	0.9	0.025	0.9	0.2	-	D



Standards				Health Advisories									Cancer Group
Chemicals	Status Reg.*	MCLG (mg/l)	MCL (mg/l)	Status HA*	10-kg Child			70-kg Adult					
					One-day mg/l	Ten-day mg/l	Longer-term mg/l	Longer-term mg/l	RfD mg/kg/day	DWEL mg/l	Lifetime mg/l	mg/l at 10 <sup>-4</sup> Cancer Risk	
Monochloroacetic acid	L	-	-	D	-	-	-	-	-	-	-	-	-
Monochlorobenzene	F	0.1	0.1	F	2	2	2	7	0.02	0.7	0.1	-	D
Nitrobenzene	-	-	-	F	0.5	0.5	0.4	1	0.004	0.1	0.02	-	D
Nitrocellulose (non-toxic)	-	-	-	F	-	-	-	-	-	-	-	-	-
Nitroguanidine	-	-	-	F	10	10	10	40	0.1	4	0.7	-	D
Nitrophenols p-	-	-	-	D	0.8	0.8	0.8	3	0.008	0.3	0.06	-	D
Oxamyl (Vydate)	P	0.2	0.2	F	0.2	0.2	0.2	0.9	0.025	0.9	0.2	-	E
Ozone by-products	L	-	-	-	-	-	-	-	-	-	-	-	-
Paraquat	-	-	-	F	0.1	0.1	0.05	0.2	0.0045	0.2	0.03	-	E
Pentachloroethane	-	-	-	D	-	-	-	-	-	-	-	-	-
Pentachlorophenol	P	zero	0.001	F	1	0.3	0.3	1	0.03	1	-	0.03	B2
Phenanthrene (PAH)	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	-	-	-	D	6	6	6	20	0.6	20	4	-	D
Picloram	P	0.5	0.5	F	20	20	0.7	2	0.07	2	0.5	-	D
Polychlorinated biphenyls (PCBs)	F	zero	0.0005	P	-	-	-	-	-	-	-	0.0005	B2
Prometon	-	-	-	F	0.2	0.2	0.2	0.5	0.015	0.5	0.1	-	D
Pronamide	-	-	-	F	0.8	0.8	0.8	3	0.075	3	0.05	-	C
Propachlor	-	-	-	F	0.5	0.5	0.1	0.5	0.013	0.5	0.09	-	D
Propazine	-	-	-	F	1	1	0.5	2	0.02	0.7	0.01	-	C
Propion	-	-	-	F	5	5	5	20	0.02	0.6	0.1	-	D
Propylbenzene n-	-	-	-	D	-	-	-	-	-	-	-	-	-
Pyrene (PAH)	-	-	-	-	-	-	-	-	0.03	-	-	-	D
RDX	-	-	-	F	0.1	0.1	0.1	0.4	0.003	0.1	0.002	0.03	C
Simazine	P	0.001	0.001	F	0.5	0.5	0.05	0.2	0.002	0.06	0.001	-	C
Styrene	F	0.1	0.1	F	20	2	2	7	0.2	7	0.1	-	C
2,4,5-T	L	-	-	F	0.8	0.8	0.8	1	0.01	0.35	0.07	-	D
2,3,7,8-TCDD (Dioxin)	P	zero	5E-08	F	1E-06	1E-07	1E-08	4E-08	1E-06	4E-08	-	2E-08	B2
Tebuthiuron	-	-	-	F	3	3	0.7	2	0.07	2	0.5	-	D
Terbacil	-	-	-	F	0.3	0.3	0.3	0.9	0.013	0.4	0.09	-	E
Terbufos	-	-	-	F	0.005	0.005	0.001	0.005	0.00013	0.005	0.0009	-	D

\* Under review.

NOTE: Phenanthrene -- not proposed.



Chemicals	Standards			Status HA*	Health Advisories								Cancer Group
	Status Reg.*	MCLG (mg/l)	MCL (mg/l)		10-kg Child			70-kg Adult					
					One-day mg/l	Ten-day mg/l	Longer- term mg/l	Longer- term mg/l	RfD mg/kg/day	DWEL mg/l	Lifeltme mg/l	mg/l at 10 <sup>-4</sup> Cancer Risk	
Tetrachloroethane (1,1,1,2-)	L	-	-	F	2	2	0.9	3	0.03	1	0.07	0.1	C
Tetrachloroethane (1,1,2,2-)	L	-	-	D	-	-	-	-	-	-	-	-	-
Tetrachloroethylene	F	zero	0.005	F	2	2	1	5	0.01	0.5	-	0.07	B2
Toluene	F	1	1	F	20	2	2	7	0.2	7	1	-	D
Toxaphene	F	zero	0.005*	F	0.5	0.04	-	-	0.1	0.0035	-	0.003	B2
2,4,5-TP	F	0.05	0.05	F	0.2	0.2	0.07	0.3	0.0075	0.3	0.05	-	D
1,1,2-Trichloro-1,2,2- trifluoroethane	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroacetic acid	L	-	-	D	-	-	-	-	-	-	-	-	-
Trichloroacetonitrile	L	-	-	D	0.05	0.05	-	-	-	-	-	-	-
Trichlorobenzene (1,2,4-)	P	0.009	0.009	F	0.1	0.1	0.1	0.5	0.001	0.05	0.009	-	D
Trichlorobenzene (1,3,5-)	-	-	-	F	0.6	0.6	0.6	2	0.006	0.2	0.04	-	D
Trichloroethane (1,1,1-)	F	0.2	0.2	F	100	40	40	100	0.035	1	0.2	-	D
Trichloroethane (1,1,2-)	P	0.003	0.005	F	0.6	0.4	0.4	1	0.004	0.1	0.003	-	C
Trichloroethanol (2,2,2-)	L	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethylene	F	zero	0.005	F	-	-	-	-	0.007	0.3	-	0.3	B2
Trichlorophenol (2,4,6-)	L	-	-	D	-	-	-	-	-	-	-	0.3	B2
Trichloropropane (1,1,1-)	-	-	-	D	-	-	-	-	-	-	-	-	-
Trichloropropane (1,2,3-)	-	-	-	F	0.6	0.6	0.6	2	0.006	0.2	0.04	-	-
Trifluralin	L	-	-	F	0.08	0.08	0.08	0.3	0.0075	0.3	0.005	-	C
Trimethylbenzene (1,2,4-)	-	-	-	D	-	-	-	-	-	-	-	-	-
Trimethylbenzene (1,3,5-)	-	-	-	D	-	-	-	-	-	-	-	-	-
Trinitroglycerol	-	-	-	F	0.005	0.005	0.005	0.005	-	-	0.005	-	-
Trinitrotoluene	-	-	-	F	0.02	0.02	0.02	0.02	0.0005	0.02	0.002	0.1	C
Vinyl chloride	F	zero	0.002	F	3	3	0.01	0.05	-	-	-	0.0015	A
White phosphorus	-	-	-	F	-	-	-	-	0.00002	0.0005	0.0001	-	D
Xylenes	F	10	10	F	40	40	40	100	2	60	10	-	D

\* Under review.



Standards				Health Advisories								Cancer Group	
Chemicals	Status Reg.*	MCLG (mg/l)	MCL (mg/l)	Status HA*	10-kg Child			70-kg Adult					
					One-day mg/l	Ten-day mg/l	Longer-term mg/l	Longer-term mg/l	RfD mg/kg/day	DWEL mg/l	Lifetime mg/l		mg/l at 10 <sup>-4</sup> Cancer Risk
NORGANICS													
Aluminum	L	-	-	D	-	-	-	-	-	-	-	-	-
Ammonia	L	-	-	D	-	-	-	-	-	-	30	-	D
Antimony	P	0.003	0.01/0.005	D	0.015	0.015	0.015	0.015	0.0004	0.015	0.003	-	D
Arsenic	*	-	0.05	D	-	-	-	-	-	-	-	0.003	A
Asbestos (fibers/l > 10um)	F	7 MFL	7 MFL	-	-	-	-	-	-	-	-	700 MFL	A
Barium	P	2	2	F	-	-	-	-	0.07	2	2	-	D
Beryllium	P	zero	0.001	D	30	30	4	20	0.005	0.2	-	0.0008	B2
Boron	L	-	-	D	4	0.9	0.9	3	0.09	3	0.6	-	D
Cadmium	F	0.005	0.005	F	0.04	0.04	0.005	0.02	0.0005	0.02	0.005	-	D
Chloramine	L	-	-	D	-	-	-	-	-	-	-	-	-
Chlorate	L	-	-	D	-	-	-	-	-	-	-	-	-
Chlorine	L	-	-	D	-	-	-	-	-	-	-	-	-
Chlorine dioxide	L	-	-	D	-	-	-	-	-	-	-	-	-
Chlorite	L	-	-	D	-	-	-	-	-	-	-	-	-
Chromium (total)	F	0.1	0.1	F	1	1	0.2	0.8	0.005	0.2	0.1	-	D
Copper	P	1.3	1.3	-	-	-	-	-	-	-	-	-	D
Cyanide	P	0.2	0.2	F	0.2	0.2	0.2	0.8	0.022	0.8	0.2	-	D
Fluoride*	F	4	4	-	-	-	-	-	0.06	-	-	-	-
Lead (at source)	P	zero	0.005*	-	-	-	-	-	-	-	-	-	B2
Lead (at tap)	P	zero	TT*	-	-	-	-	-	-	-	-	-	B2
Manganese	-	-	-	D	-	-	-	-	0.14	-	-	-	-
Mercury	F	0.002	0.002	F	-	-	-	0.002	0.0003	0.01	0.002	-	D
Molybdenum	L	-	-	D	0.08	0.08	0.01	0.05	0.001	0.05	0.05	-	D
Nickel	P	0.1	0.1	F	1	1	0.1	0.6	0.02	0.6	0.1	-	D
Nitrate (as N)	F	10	10	F	-	10*	-	-	1.6	-	-	-	D

\* Under review.



Chemicals	Standards			Status HA*	Health Advisories								Cancer Group
	Status Reg.*	MCLG (mg/l)	MCL (mg/l)		10-kg Child			70-kg Adult					
					One-day mg/l	Ten-day mg/l	Longer- term mg/l	Longer- term mg/l	RfD mg/kg/day	DWEL mg/l	Lifetime mg/l	mg/l at 10 <sup>-4</sup> Cancer Risk	
Nitrite (as N)	F	1	1	F	-	1*	-	-	0.16*	-	-	-	D
Nitrate + Nitrite (both as N)	F	10	10	-	-	-	-	-	-	-	-	-	-
Selenium	F	0.05	0.05	-	-	-	-	-	0.005	-	-	-	-
Silver	L	-	-	D	0.2	0.2	0.2	0.2	0.005	0.2	0.1	-	D
Sodium	L	-	-	D	-	-	-	-	-	20***	-	-	-
Strontium	L	-	-	D	25	25	25	90	2.5	90	17	-	D
Sulfate	P	400/500	400/500	-	-	-	-	-	-	-	-	-	-
Thallium	P	0.0005	0.002/ 0.001	D	0.007	0.007	0.007	0.02	0.00007	0.002	0.0004	-	-
Vanadium	L	-	-	D	0.08	0.08	0.03	0.11	0.003	0.11	0.02	-	D
Zinc	L	-	-	D	4	4	2	9	0.2	9	2	-	D
Zinc chloride	-	-	-	D	-	-	-	-	-	-	-	-	-

RADIONUCLIDES

Beta particle and photon activity (formerly man-made radionuclides)	F	zero 4 mrem	-	-	-	-	-	-	-	-	-	4 mrem/y	A
Gross alpha particle activity	F	zero 15 pCi/L	-	-	-	-	-	-	-	-	-	-	A
Radium 226/228	F	zero 5 pCi/L	-	-	-	-	-	-	-	-	-	22/34 pCi/l	A
Radon	T	zero	-	-	-	-	-	-	-	-	-	150 pCi/l	A
Uranium	T	zero	-	-	-	-	-	-	-	-	-	170 pCi/l	A

\* Under review.

\*\*\* Guidance.



# SECONDARY MAXIMUM CONTAMINANT LEVELS

April 1991

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Chemicals	Status	SMCLs (mg/l)
Aluminum	F	0.05 to 0.2
Chloride	F	250
Color	F	15 color units
Copper	F	1
Corrosivity	F	non-corrosive
Fluoride*	F	2
Foaming Agents	F	0.5
Hexachlorocyclopentadiene		0.008
Iron	F	0.3
Manganese	F	0.05
Odor	F	3 threshold odor numbers
pH	F	6.5 - 8.5
Silver	F	0.10
Sulfate	F	250
Toluene	P	-
Total Dissolved Solids (TD)	F	500
Zinc	F	5

Status Codes: P - proposed, F - final

\* Under review.



### MICROBIOLOGY

	Status	MCLG	MCL
Cryptosporidium	L	-	-
<i>Giardia lamblia</i>	F	zero	TT
<i>Legionella</i>	F <sup>β</sup>	zero	TT
Standard Plate Count	F <sup>β</sup>	NA	TT
Total Coliforms (after 12/31/90)	F	zero	**
Turbidity (after 12/31/90)	F	NA	PS
Viruses	F <sup>β</sup>	zero	TT

Key: PS, TT, F, defined as previously stated.

<sup>β</sup>: Final for systems using surface water; also being considered for regulation under groundwater disinfection rule.